EXHIBIT L

THE FOLLOWING WAS MISSING
FROM THE ORIGINAL USPTO
FILE HISTORY

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AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1.- 96. (Canceled).

97. (Currently Amended) A device for displaying a color image comprising:

a light source ~~which~~ to ~~selectively~~ sequentially produces light of at least four, ~~independently selectable,~~ different, non-white and non-black, primary colors including at least one primary color which is not an exact complementary of any of the other primary colors; ~~and~~

a formatter to receive image data representing said color image in terms of said at least four primary colors, and to generate a formatted data signal including a sequence of color data arrays, each array including data representing at least part of said image data corresponding to one of said at least four primary colors; and

a controller ~~which receives image data representing said color image in terms of said at least four primary colors and, based on said image data,~~ to selectively controls the path of light of said at least four primary colors based on said formatted data signal to produce a light pattern corresponding to said color image.

98. (Previously presented) The device of claim 97 further comprising at least one optical element which projects said light pattern onto a viewing screen.

99. (Currently amended) The device of claim 97, wherein said light source comprises:

a polychromatic source; and

at least four ~~independently selectable~~ color ~~filter elements~~ filters, each color filter corresponding to one of said at least four primary colors, for filtering polychromatic light from said polychromatic source to produce the light of said at least four primary colors.

100. (Previously presented) The device of claim 99, wherein said light source further comprises:

a color wheel for holding said at least four color filters; and

a motor for rotating said color wheel.

101. (Currently amended) The device of claim 97, wherein the controller comprises a spatial light modulator which selectively modulates the light of said at least four primary colors in accordance with said ~~image data~~ formatted data signal.

102. (Currently amended) The device of claim 101, ~~wherein said light source sequentially produces light of said at least four primary colors and~~ wherein said spatial light modulator sequentially modulates the light of said at least four primary colors based on said ~~color image data~~formatted data signal.

103. (Previously presented) The device of claim 101, where said spatial light modulator is selected from the group consisting of a binary modulation type and a continuous modulation type.

104. (Previously presented) The device of claim 103, wherein said spatial light modulator is selected from the group consisting of deformable micro-mirror device (DMD), Ferroelectric liquid crystal (FLC) device, quantum well modulator, and electro-optical modulator.

105. (Previously presented) The device of claim 103, wherein said spatial light modulator is selected from the group consisting of liquid crystal device (LCD), electro-optical modulator and magneto-optical modulator.

106. (Previously presented) The device of claim 97, wherein said light source comprises a continuously variable neutral density filter for controlling the brightness of the light of said at least four primary colors.

107. (Currently amended) The device of claim 97, wherein said ~~light source produces light of~~at least four primary colors comprise at least five ~~independently selectable~~ primary colors.

108. (Currently amended) The device of claim 108, wherein said ~~light source produces light of~~at least five primary colors comprise at least six ~~independently selectable~~ primary colors.

109. (Previously presented) The device of claim 97, wherein said light source additionally produces white light affecting the brightness of said image.

110. (Previously presented) The device of claim 97 wherein said image data comprises digital image data.

111. (Previously presented) The device of claim 97 wherein said image data comprises analog image data.

112. (Previously presented) The device of claim 97 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

113. (Previously presented) The device of claim 97 wherein the combined wavelength ranges of at least three of the at least four primary colors cover substantially all wavelengths in the visible spectrum.

114. (Currently amended) A system for displaying a color image comprising:

~~a light source which selectively produces light of at least four, independently selectable, primary colors;~~

a converter ~~which~~ to ~~converts~~ convert three-primary-color ~~input~~ data representing said color image in terms of three primary colors into converted image data representing said color image in terms of ~~said~~ at least four different, non-white and non-black, primary colors including at least one primary color which is not an exact complementary of any of the other primary colors; ~~and~~

a formatter to generate a formatted data signal including a sequence of color data arrays, each array including data representing at least part of the converted image data corresponding to one of said at least four primary colors; and

a controller ~~which~~ to selectively controls ~~the~~ a path of light of said at least four primary colors based on said ~~converted image~~ formatted data signal to produce a light pattern corresponding to said color image.

115. (Currently amended) A system according to claim 114, wherein said three-primary-color ~~input~~ data comprises data selected from the group consisting of red-green-blue (RGB) and YCC.

116. (Previously presented) The system of claim 114 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

117. (Previously presented) The system of claim 114 wherein the combined wavelength ranges of at least three of the at least four primary colors cover substantially all wavelengths in the visible spectrum.

118. (Currently amended) A method ~~for~~ of displaying a color image comprising:

~~selectively producing light of at least four, independently selectable, primary colors;~~

converting three-primary-color ~~input~~ data representing said color image in terms of three primary colors into converted image data representing said color image in terms of ~~said~~ at least four different, non-white and non-black, primary colors including at least one primary color which is not an exact complementary of any of the other primary colors; ~~and~~

generating a formatted data signal including a sequence of color data arrays, each array including data representing at least part of the converted image data corresponding to one of said at least four primary colors; and

selectively controlling ~~the~~ a path of light of said at least four primary colors based on said ~~converted image~~ formatted data signal to produce a light pattern corresponding to said color image.

119. (Currently amended) The method of claim 119, wherein said three-primary-color ~~input~~ data comprises ~~input~~ data selected from the group consisting of red-green-blue (RGB) and YCC.

120. (Previously presented) The method of claim 119 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

121. (Previously presented) The system of claim 114 wherein the combined wavelength ranges of at least three of the at least four primary colors cover substantially all wavelengths in the visible spectrum.

122. (Currently amended) A ~~device~~ method ~~for~~ of projecting a color image comprising:

~~a light source to sequentially produce light of at least four, independently selectable, primary colors, the light source comprising a polychromatic source and at least four independently selectable color filters, each color filter corresponding to one of said at least four primary colors, to filter polychromatic light from said polychromatic source to produce the light of said at least four primary colors;~~

~~a controller to receive image data representing said color image in terms of said at least four primary colors and, based on said image data, to selectively control the path of light of said at least four primary colors to produce a light pattern corresponding to said color image, said controller comprising a spatial light modulator which sequentially modulates the light of said at least four primary colors in accordance with said image data; and~~

~~at least one optical element to project said light pattern.~~

sequentially producing light of at least four, different, non-white and non-black, primary colors including at least one primary color which is not an exact complementary of any of the other primary colors;

based on image data representing said color image in terms of said at least four primary colors, generating a formatted data signal including a sequence of color data arrays, each array including data representing at least part of said image data corresponding to one of said at least four primary colors; and

selectively controlling the path of light of said at least four primary colors based on said formatted data signal to produce a light pattern corresponding to said color image.

123. (Currently amended) The ~~device~~ method of claim 122, wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

124. (Currently amended) ~~A device for displaying image data of a plurality of colors comprising:~~ The method of claim 122, wherein the at least four primary colors comprise:

~~light producing means for producing light of at least four primary colors; and~~

~~means for determining a combination of at least one of said at least four primary colors according to the image data for production by said light source.~~

a primary color having a set of wavelengths falling within the range of between approximately 560 nanometers and approximately 600 nanometers.

125. (Currently amended) The device of claim ~~122~~ 97, ~~wherein said light producing means comprises:~~

~~means for producing polychromatic light;~~

~~at least four color filtering means, each color filtering means comprising means for filtering said polychromatic light to produce light of one of said at least four primary colors; and~~

~~means for selectively placing each of said color filtering means in the path of said polychromatic light;~~

wherein the sequence of color data arrays comprises a sequence of bit planes, each bit plane representing at least part of said image data corresponding to one of said at least four primary colors, the bit plane including an array of bits, each bit representing a pixel component of said color image corresponding to said one of said at least four primary colors.

126. (Currently amended) The device of claim ~~124~~ 97, ~~further comprising means for sequentially projecting light of said at least four primary colors according to said combination~~wherein said formatter is able to generate said color data arrays in a sequence corresponding to the sequence at which the light of said at least four primary colors is produced.

127. (Currently amended) The device of claim ~~124~~ 97 wherein ~~the wavelength ranges of at least three of said at least four primary colors cover substantially all wavelengths in the visible spectrum~~none of the at least four primary colors is a combination of two or more of the other primary colors.

128. (Canceled).

129. (Currently amended) The device of claim 97, ~~wherein the primary colors are created by a method~~ comprising:

~~creating a set of sample colors; and~~

~~determining a set of primary colors accurately simulating the set of sample colors.~~

a converter to convert three-primary-color data representing said color image in terms of three primary colors into the image data representing said color image in terms of said at least four primary colors.

130. (Currently amended) The device of claim 97, wherein the at least four primary colors comprise:

a ~~first~~ primary color having a set of wavelengths falling within the range of between approximately ~~450~~ 560 nanometers and ~~below~~approximately 600 nanometers;

~~a second primary having a set of wavelengths falling within the range of approximately 600 nanometers and above; and~~

~~a third primary having a set of wavelengths centered around a center wavelength of approximately 500 to 550 nm and having a width of wavelengths not exceeding approximately 100 nm~~.

131. (Currently amended) The device of claim ~~12~~497, wherein said light ~~producing means features~~ source comprises a plurality of substantially monochromatic sources, each monochromatic source producing light of one of said at least four primary colors.

132. (Currently amended) ~~The device of claim 124~~The system of claim 114, ~~further~~ comprising

~~a projector means for projecting light of said at least four primary colors onto said viewing screen according to said combination.~~

a light source which sequentially produces the light of said at least four primary colors.

133. (Currently amended) The ~~device~~ system of claim ~~124~~132, wherein said light ~~producing means~~source comprises:

a polychromatic source; and

at least four color filters, each color filter corresponding to one of said at least four primary colors, for filtering polychromatic light from said polychromatic source to produce the light of said at least four primary colors.

134. (Currently amended) The ~~device~~ system of claim ~~124~~114, wherein ~~said light source produces light of at least five primary colors~~ the sequence of color data arrays comprises a sequence of bit planes, each bit plane representing at least part of the converted image data corresponding to one of said at least four primary colors, the bit

plane including an array of bits, each bit representing a pixel component of said color image corresponding to said one of said at least four primary colors.

135. (Currently amended) ~~A method for translating a first color space signal to an n primary color space signal using a chromaticity diagram which is expressed in a two dimensional space, the chromaticity diagram including n points C1 through Cn, each corresponding to one of the n primaries, the chromaticity diagram including a point P representing a color P, the method comprising:~~

~~mapping n triangular areas on the chromaticity diagram, each triangular area having as its corner points the point P and two adjacent points Cx and Cy being chosen from points C1 through Cn;~~

~~mapping the first color space signal on the chromaticity diagram as a point D;~~

~~determining in which triangle T the point D is located, the triangle T being formed by the point P and the points X and Y; and~~

~~determining the constants ap, ax, and ay, ap representing the contribution of the color P to the n primary color space signal, ax representing the contribution of the color corresponding to point X to the n primary color space signal, and ay representing the contribution of the color corresponding to point Y to the n primary color space signal.~~

The system of claim 114, wherein none of the at least four primary colors is a combination of two or more of the other primary colors.

136. (Currently amended) The method of claim ~~135~~118, wherein ~~the point P corresponds to a substantially white color~~ the sequence of color data arrays comprises a sequence of bit planes, each bit plane representing at least part of the converted image data corresponding to one of said at least four primary colors, the bit plane including an array of bits, each bit representing a pixel component of said color image corresponding to said one of said at least four primary colors.

137. (Currently amended) The method of claim ~~135~~118, wherein ~~a set of points Q chosen from points C1 through Cn do not form the triangle T, comprising determining the contribution of the colors represented by the points Q to the color space signal based on the contribution of the colors represented by the points Q to the color P~~ none of the at least four primary colors is a combination of two or more of the other primary colors.

138. (Currently amended) ~~A device for displaying image data of a plurality of colors, the device comprising:~~

~~a light source for producing light having at least four primary colors;~~

~~a controller performing at least the steps of claim 39; and~~

~~a viewing screen for displaying the image data according to said combination from said controller.~~

The method of claim 122, wherein the sequence of color data arrays comprises a sequence of bit planes, each bit plane representing at least part of said image data corresponding to one of said at least four primary colors, the bit plane including an array of bits, each bit representing a pixel component of said color image corresponding to said one of said at least four primary colors.

139. (Currently amended) ~~A color display comprising:~~

~~a light producing means;~~

~~a controller means converting a first color space signal to an n primary color space signal, using a chromaticity diagram which is expressed in a two dimensional space, the chromaticity diagram including n points C1 through Cn, each corresponding to one of n primaries, the controller performing at least the steps of:~~

~~mapping a point Pa on the chromaticity diagram, the point Pa representing a color Pa;~~

~~mapping n triangular areas on the chromaticity diagram, each triangular area having as its corner points the point Pa and a pair of points taken from Cx and Cy;~~

~~mapping the three value color space signal on the chromaticity diagram as a point D;~~

~~defining a triangle S, triangle S being formed by a center point P and by the points X and Y;~~

~~using the three colors forming the triangle S to create an additive linear combination; and~~

~~solving the additive linear combination for the constant ax, representing the contribution of the color corresponding to point X to the n primary color space signal, and the constant ay, representing the contribution of the color corresponding to point Y to the n primary color space signal.~~

The method of claim 122, wherein generating said formatted data signal including said sequence of color data arrays comprises generating said formatted data signal including said color data arrays in a sequence corresponding to the sequence at which the light of said at least four primary colors is produced.

140. (Currently amended) ~~A~~ The method ~~for defining a set of primary colors comprising:~~of claim 122, wherein none of the at least four primary colors is a combination of two or more of the other primary colors.

~~creating a set of sample colors;~~

~~for each sample color, sampling a set of wavelengths to create a vector;~~

~~forming a matrix from the vectors; and~~

~~decomposing the matrix to obtain at least a set basis vectors.~~

141. – 152. (Canceled).

REMARKS

The foregoing amendments and following remarks are directed to formalities. Entry of this Supplemental Preliminary Amendment is respectfully requested.

Remarks to the Claims

Claims 97-152 are pending in the Application.

Claims 97, 99, 101, 102, 107, 108, 114, 115, 118, 119, 122-127, and 129-140 have been amended to more clearly define the subject matter claimed by the present Application.

Claims 128, and 141-152 have been canceled without prejudice. In making this cancellation without prejudice, Applicants reserve all rights in these claims to file divisional and/or continuation patent applications.

It is respectfully asserted that the above changes do not add new matter. Approval is requested to the above changes.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below.

No fees are due, however, if any fee is due, the undersigned hereby authorizes the United States Patent and Trademark Office to charge the fees to Deposit Account 50-3355.

Respectfully submitted,

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